A CONTRIBUTION TO THE KNOWLEDGE OF THE CYPRINIDAE OF IRAN (PISCES, CYPRINIFORMES) (3)

by

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ABSTRACT.– A total amount of 23 species and subspecies, mainly from southern Iran, are described. Among them, there is a new species and three new subspecies. *Schizocypris altidorsalis,* from Seistan, is the third species of the genus. *Chondrostoma cyri orientalis,* from Pulwar River (Kor River basin) near Persepolis belong, apparently, to the *nasus* group. *Capoeta capoeta intermedia,* from Mand and Hablehrud rivers, is intermediate between *C.c. umbla* and *C.c. macrolepis. Capoeta barroisi mandica* is another new subspecies from Mand River, Besides, almost all other species deserve some remarks concerning their systematic status.

RESUME.– Une collection de 23 espèces et sous-espèces provenant surtout du sud de l'Iran est décrite dans ce travail. Parmi elles, les auteurs décrivent une nouvelle espèce et trois nouvelles sous-espèces. *Schizocypris altidorsalis,* provenant de Seistan, est la troisième espèce du genre. *Chondrostoma cyri orientalis,* de la rivière Pulwar (bassin du Kor) près de Persépolis, appartient, semble-t-il, au groupe *nasus. Capoeta intermedia,* des rivières Mand et Hablehrud, est intermédiaire entre *C. c. umbla* et *C. c. macrolepis. Capoeta barroisi mandica* est une autre nouvelle sous-espèce provenant de la rivière Mand. Presque toutes les autres espèces citées permettent de fournir des compléments d'information sur leur statut systématique.

The first author made a zoological trip in several areas of Iran during the months June-July 1975 and May-June 1976 collecting fish specimens from localities illustrated in Tab. I. Further fish specimens were collected by Prof. Augusto Vigna (Zoological Institute of Rome) from the outskirts of Zabol, Seistan Province, SE Iran on November 1977.

This paper deals only with Cyprinidae collected during the above mentioned trips ; this family, the largest in the fish fauna of the world (Nelson, 1976) and, undoubtedly the largest in the fresh waters of the Holoarctic and Sino-Indian regions, is represented in the collection under study by a total amount of 23 species and subspecies, among which there are a new species and three new subspecies, while almost all other species deserve some remarks concerning their systematic status. The collection is mainly represented by fishes collected from the southern areas of Iran and it is but natural that it includes only a small part of the rather rich and incompletely known Cyprinid fauna of Iran.

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Tab. I. Collecting localities of Cyprinidae in Iran during two (1975 and 1976) Italian Zoological expeditions. Temperature in parenthesis are from banks, the others from the middle of the rivers ; h = altitude ; S = salinity.

Rivers	Locality	Date	h (m)	T (°C)	pH	S ‰
Trib. to Araxes	Maku	29/6/1975	1300	18	7.5	–
Qezel-owzan	Mivaneh	30/6/1975	1250	27	8.0	–
Qom	Qom	6/7/1975	950	33	8.0	–
Pulwar	Persepolis	8/7/1975	1800	21 (17)	8.2	–
Mand	Akbar	10/7/1975	1600	24 (18)	–	–
Mand	Dasht-e-Arzhan	11/7/1975	1900	23 (17)	8.5	–
Hablehrud	Borazjan	14/7/1975	100	30	8.2	–
Mand	Dasht-e-Arzhan	25/5/1976	1900	18 (16)	–	–
Mand	Akbar	27/5/1976	1450	23 (16)	7.3	0.7
Hablehrud	Borazjan	28/5/1976	170	25 (28)	7.6	2.5
Pulwar	Persepolis	30/5/1976	1800	21	8.0	0.5
Springs of Kul River	Darab	1/6/1976	1750	23	7.5	0.2
Qom	Qom	5/6/1976	950	23	8.3	3.5

Barilius mesopotamicus (Berg, 1932)

Hablehrud River, southern Iran, Persian Gulf drainage, near Borazjan, 28.5.1976, P. Bianco and S. Zerunian coll., 4 spec. 43.2-49.0 mm standard length (SL), two are deposited in first author's collection (I.Z.A.) cat. number 7858 and two in the Institute of Biological Sciences, Bucarest (I.S.B.B.) uncatalogued.

This species was described by Berg (1932), from Tigris River near the border between Turkey and Iran, after a single specimen Z.I.A.N. 23955, 36.0 mm SL. The second author examined the type specimen in Leningrad. It has : D 3/8, A 2/13, an incomplete lateral line, a single pair of barbels (the rostral), pharyngeal teeth on two rows. The four Hablehrud specimens are similar to the holotype of *mesopotamicus* in all respects, except the lateral line that is complete. Doubts could therefore be raised about the identity of the Hablehrud specimens. But we obtained five other specimens from the upper Tigris in Turkey, e.g. near the type-locality, collected by Mr. A. Kelle in Kiyarbakir and deposited in I.S.B.B. These are identical to the Hablehrud specimens and have complete lateral line, with 47-53 scales. It seems quite improbable that two distinct species, similar in all respects, but one with incomplete and one with complete lateral line, occur sympatrically in the upper Tigris River. We, therefore, consider that the length of the lateral line is subject to individual variation and there is a single species, with apparently no distinct subspecies, that extends from the Tigris to Hablehrud River.

Doubts were raised concerning the generical position of this species by G.J. Howes in his valuable paper on the anatomy and phylogeny of Bariliinae minnows (1980) : he considers that *mesopotamicus* does not belong to *Barilius* and that it shares apomorph characters with some species presently assigned to *Leucaspius*.

We have no possibility to study the osteology of this species. Yet we found a single external character in which it differs from the other *Barilius* : pharyngeal teeth on two rows. It resembles several other *Barilius* in having barbels, a low lateral line, rather broad suborbitals, transversal stripes, very similar to those in some species such as *B. vagra*. *Leucaspius*, actually includes a single species, the central european *L. delineatus*. This species has a quite short lateral line running on the middle of the sides, no barbels, no stripes, three circum-anal papillae. None of these characters occurs in *mesopotamicus*. Several other species from southern Europa and the Near East, included by some earlier authors within *Leucaspius* (some of them within *Rutilus*), actually represent a distinct genus, *Pseudophoxinus* (= *Phoxinellus* auct. *nec* Heckel) (Trewavas, 1971) ; these have a deeper body, darkened body sides (but no lateral stripes), a blackish peritoneum, pharyngeal teeth on a single row, short dorsal and anal fins, no barbels, complete or incomplete lateral line running on the middle of the side.

Hence the species *mesopotamicus* may be generically distinct from the true South-Asian *Barilius*, but we cannot accept it is closer either with *Leucaspius* or with *Pseudophoxinus*.

Leuciscus cephalus orientalis Nordmann, 1840

Qom River, inner drainage from northern Iran, near Qom town, 6/7/1975, P. Bianco coll., three spec. 109-111 mm SL (two I.Z.A. 7815 and one I.S.B.B. uncat.).

D 3/8 ; A 2/8-9 ; LL 43-44

The species *L. cephalus* has a wide range throughout most of Europe, Anatolia, the Tigris-Euphrat system, Transcaucasia and northern Iran (Caspian Sea basin and inner drainages). Several subspecies are recognized, but the differences between them are slight and there is no critical revision of them. According to Berg (1912, 1949 a, 1949 b) the populations from West Asia and the northern slope of Caucasus represent a distinct subspecies, that differs from the central european nominal subspecies in having a dark stripe on the operculum and statistically fewer scales and anal rays, but with overlap of extreme values.

L.c. cephalus : A 3/ (8) 9 (10), LL (43) 44-46 (47)
L.c. orientalis : A 3/ (7) 8 (9), LL (38) 41-46 (47)

The few specimens from Qom River basin (and others from upper Tigris) have the formula indicated by Berg as typical for *orientalis*, while those from the Danube River in Romania have usually 44-46 scales in lateral line, but eight, rarely nine or ten branched anal rays.

These few data actually suggest the subspecifical independence of *orientalis*, but a statistical study on much more specimens is necessary in order to decide this problem.

Chalcalburnus mossulensis (Heckel, 1843)

Pulwar River, inner drainage east of Shiraz, near Persepolis, 30/5/1976 and 8/7/1975, 111 spec. 48-147 mm SL, I.Z.A. 7818 ; Mand River near Dasht E Arzhan, 25/5/1976, 47 spec. 38-78 mm SL, I.Z.A. 7895 ; Mand River near Akbar, 27/5/1976, 13 spec. 51-118 mm SL, I.Z.A. 7819 ; springs of a tributary of Kul River near Darab, 1/6/1976, 2 spec. 92 and 111 mm SL ; I.Z.A. 788. All collected by P, Bianco and S. Zerunian.

This species was described from Tigris River at Mossul under the name *Alburnus mossulensis* ; it was later on assigned to *Chalcalburnus* (Berg, 1933, 1949 b), a genus that differs from *Alburnus* above all in having the postventral keel partially covered by scales, usually fewer anal rays, more scales and a thicker body. Four species are presently ascribed to *Chalcalburnus* :

– *chalcoides* (Güldenstädt), including several subspecies in the basins of the Black, Caspian, Aral and Egean seas;

– *tarichi* (Pallas) in Lake Van, eastern Turkey ;

– *sellal* (Heckel) in western Syria (Orontes and Kueik Rivers) ;

– *mossulensis* (Heckel) in the Tigris-Euphrat basin. Berg (1949 b) believes that three nominal species described from lake Niris, southern Iran, are synonyms of *mossulensis*.

The three last-named species have blackish peritoneum, *Chalcoides* a silvery one.

The comparision of our numerous specimens from the three river basins in Iran with the few available specimens from the upper Tigris in Turkey (not far from Mossul, the type locality) and with data by other authors, reveals a wide range of variation for three important characters : number of branched rays in the anal fin, number of scales in lateral line and gill rakers. We found following values in the Iranian specimens and in the available upper Tigris ones :

	A (branch.)	LL	G.R.
upper Tigris	11-12 (11.75)	69-80 (74.2)	11-15 (14.5)
Pulwar River	10-12 (11.24)	66-82 (75.98)	12-16 (13.82)
Mand R. (Dasht.)	10-12 (10.89)	61-74 (68.29)	12-14 (12.91)
Mand R. (Akbar)	10-12 (11.00)	65-72 (68.00)	12-14 (12.50)
Kul R. springs	10-12 (11.00)	65-72 (68.00)	12-13 (12.50)

Those data demonstate there is a more or less gradual decrease of the number of anal rays, scales and gill rakers from the north-west to the south-east. The Pulwar River (Kor R. basin) specimens are intermediate in respect of the number of anal rays and gill rakers (but not of scales) between those from the upper Tigris and from the Mand and Kul basins, being much closer to the Tigris specimens. One is justified to include the Pulwar River population within the same subspecies as the Tigris-Euphrat specimens, and to separate those from Mand and Kul basins in a distinct subspecies. There are four available specific names based on specimens belonging to *Ch. mossulensis* in a wide sense : *Alburnus capito* Heckel, 1843 (type locality : Kurdistan, e.g. Tigris basin) ; *A. iblis* Heckel, 1846 ; *A. schejtan* Heckel, 1846 ; *A. megacephalus* Heckel 1846. These three are from Kor River basin near Persepolis (Heckel, 1846 gives as locality Araxes R. bei Persepolis ; this is surely an older name for Pulwar R., a tributary of Kor, the only river that flows in the immediate vicinity of Persepolis ; it has nothing to do with the true Araxes, the main tributary of Kura River, Caspian Sea basin).

Hence the four available names refer to localities within the range of the same subspecies ; basins of Tigris and Kor rivers. A new subspecifical name has to be proposed for populations from the basins of Mand and Kul rivers. Yet we think it is better not yet to describe a new subspecies, since the problem of the general geographical variation of *Ch. mossulensis* is far from being clear : Berg (1949 b) gives for specimens from the Tigris, scale counts within a much wider range of variation as found by us (65-84) and for specimens from the Euphrat 76-86 ; *Ch. sellal* from Orontes and Kueik rivers, usually considered as a distinct species, has A 3/13, LL 66-70, G.R. ± 14 according to Berg (1949 b), but in seven specimens from Kueik R., Aleppo (M.N.H.N. A 3905 and A 3906) the second author found LL 71-77 (-84), G.R. 10-14, e.g. values within the range of variation of *mossulensis*. Besides this, the temperature of the water is quite variable in the upper reach of the three Iranian rivers where the species was collected and it is known that the number of vertebrae and scales, sometimes depend of the environmental conditions being not determined genetically.

Alburnoides bipunctatus eichwaldi (de Filippi, 1863)

Small tributary to Araxes River near Maku, northern Iran, 29/6/1975, 4 specimens 43-70 mm SL, I.Z.A. 7814, P. Bianco coll.

D 3/8 ; A 3/12 (13) ; LL 45-48 ; G.B. 7.

This subspecies, spread in rivers flowing in southern Caspian Sea, Euphrat River in Anatolia, Karadj River and lake Rezaiyeh, differs from the nominal subspecies in having less branched rays in the anal fin, and a much deeper body, head and caudal peduncle.

Carasobarbus luteus (Heckel, 1843)

Springs of a tributary of Kul River near Darab, southern Iran, 9 spec. 67-326 mm SL, 9 I.Z.A. 8168 and 3 I.S.B.B. uncat., 1/6/1976, P. Bianco and S. Zerunian coll.

D 4/10 ; A 3/6 ; LL (26) 28-30 (31) ; G.R. 8-12 ; circumpeduncular scales 12.

We compared these specimens with twelve (I.S.B.B. uncat.) from the Tigris-Euphrat basin and found no significant differences between them.

Chondrostoma cyri orientalis subsp. nova (Fig. 1A and 2A)

Holotype : I.Z.A. 8170, 92 mm SL, Pulwar River near Persepolis, 30/5/1976, P.Bianco and S. Zerunian coll. Paratypes : I.Z.A. 7833, 75 spec. 34-90 mm SL, (ten more specimens are deposited in I.S.B.B. uncat.), same locality as holotype.

Derivatio nominis. - orientalis = eastern, this being the easternmost form of the genus *Chondrostoma.*

Diagnosis.– A *Chondrostoma* with transverse mouth, usually 8 branched rays in the dorsal, nine or ten in the anal fin, 47-55 scales in lateral line, 23-28 gill rakers.

Description. – D 3/(7) 8 (9), M = 7.98 ; A 2/ 9 (10), M = 9.31 ; LL 47-55. M = 50.8 ; G.R. 22-28, M = 25.3 ; Phar. teeth 6-6, more rarely 6-5 or 7-5.

In % of SL : body depth 24.1-29.2 (M = 25.9) ; least depth 9.9-12.3 (11.0) ; caudal peduncle length 18.1-23.7 (20.0) ; predorsal distance 47.7-52.0 (50.0) ; preventral distance 51.2-54.5 (52.3) ; pectoral-ventral distance 27.7-29.3 (28.7) ; preanal distance 68.5-71.7 (69.7) ; length of pectorals 17.6-22.1 (19.1) ; length of pelvics 18.7-22.5 (20.4) ; height of dorsal 21.7-23.9 (22.6) ; base of dorsal 12.0-14.4 (13.1) ; height of anal 14.0-16.0 (14.9) ; base of anal 10.9-13.1 (11.8) ; head length 22.7-27.7 (24.3) ; length of snout 5.5-7.1 (6.2) ; eye diameter 5.4-6.6 (6.0).

In % of head length : snout 23.8-27.6 (26.2) ; eye diameter 23.8-26.1 (25.0). (Values in ten specimens, 69-92 mm SL, M = 82 mm).

Comparative remarks and discussion.– The genus *Chondrostoma* includes 11 species ranging throughout Europe, Anatolia, Transcaucasia, western Syria and the Tigris-Euphrat basin. Berg (1932), who includes within the genus a few more species, that later on prove to be either synonyms, hybrids *(Ch. reiseri)* or to belong to other genera, ascribes them to two distinct groups : *nasus,* characterized by an almost transversal mouth, and *toxostoma* with a strongly arched mouth.

Actually the differences between the two groups are not as sharp as accepted by Berg. Only two species have a strongly arched mouth : *phoxinus,* from Adriatic slope of the Balkan Peninsula and *toxostoma* from south France (with a distinct subspecies, *arrigonis,* on the Atlantic slope of Spain and Portugal). In some other species the mouth is not as arched as in these two species, but neither as transverse as in *nasus : kneri,* from the west Balkan, the two Italian species *genei* (usually included within the *toxostoma* group) and *soetta* (included in the *nasus* group) and apparently *cyri* from the Kura-Araxes basin in Transcaucasia. More difficulties raise from the fact that in the young the mouth is usually more arched than in adult specimens and the character is also subject to some individual variability (and also it cannot be measured).

The Pulwar River (Kor R. basin) form, here described as new, is represented in our collections only by young specimens (largest 92,0 mm SL), in which the mouth is slightly arched (but it may be transverse in adult specimens).

Two species range in the proximity of Kor River basin : *regium* in the Tigris-Euphrat, western Syria and most of Anatolia, that has a transversal mouth, and *cyri* in the Kura-Araxes basin, in which is rather slightly arched. The formulae of these two species are :

regium : D 3/(8) 9 ; A 2/(9) 10-11 ; LL 62-69 ; G.R. 24-31 ; Phar. teeth 7-7; 6-7 or, rarely, 6-5.

cyri : D 3/(7) 8 (9) ; A 2/(8) 9 (10) ; LL 52-64 ; G.R. 21-24 ; Phar. teeth 5-5, 6-5 or 6-6.

By comparing these figures with those of *orientalis,* it becomes evident that the last-named is more similar to *cyri* in respect of number of dorsal and anal rays, scales, to a certain degree of pharyngeal teeth formula, too, being intermediate in respect of the number of gill rakers. We therefore, consider it closer to *Ch. cyri* and include in it, as a new subspecies, within the last named.

Crossocheilus latius diplocheilus (Heckel, 1838)

Synonyms : *Barbus diplocheilus* Heckel, 1838 (Indus drainage, Kashmeer) ; *Crossochilus latius punjabensis* Mukerji, 1934 (Indus drainage, Punjab) ; *Discognathus adiscus* Annandale, 1919 (Seistan, Iran).

Nahr-taheri, near Zabol, Seistan, 16 spec. 39-41 mm SL, I.S.B.B. uncat., 263 spec. 29-60 mm SL, I.Z.A. 7840, 1/10/1977 Prof. A. Vigna coll. ; Rud-Sistan, near Zabol, Seistan, 35 spec. 35-78 mm SL, I.Z.A. 7820, 10/1977 A. Vigna coll.

The species *C. latius* has a wide range over whole North India-Pakistan, also ranging in parts of Central India and of Afghanistan extending west to Seistan Province in Iran. It is presently accepted by most authors that there are two subspecies in North India : the nominal one in the Gange-Brahmaputra basin, characterized by 39-42 scales in lateral line, and *diplocheilus* (= *punjabensis)* in the Indus River basin, with 36-39 scales. The Seistan form was described as *adiscus ;* it has 35-39 scales (usually 36) ; Berg (1949 b) considers it a distinct species that differs from *diplocheilus* in having rostral barbels and quite reduced papillae on the lower lip. Actually several *diplocheilus* specimens have rostral barbels too and we found no differences between the specimens from the Indus basin, Afghanistan (Arghandab R., U.S.N.M. 182278) and Seistan in respect of the development of the lower lip papillae. Since the number of scales is practically the same, we do not find any reason for recognizing *adiscus* as a distinct species or subspecies.

Karaman (1971) considers *D. adiscus* to be a subspecies of *Tylognathus* *elegans*, for which he raised the new genus *Hemigarra* ; it seems he had no available *adiscus* specimens, since he mentions none. We examined several syntypes of *T. elegans* and found they actually represent a distinct genus, for which the name *Hemigarra* Karaman is justified ; but *adiscus* differs strongly from it, being a typical *Crossocheilus*.

Garra rufa crenulata (Heckel, 1844)

Hablehrud River, near Borazjan, 10 spec. 39-88 mm SL, I.S.B.B. uncat., 7 spec. 41-60 mm SL, I.Z.A. 7860, 14/7/1975 and 28/5/1976, P. Bianco and S. Zerunian coll. Mand River near Akbar, 5 spec. 39-66 mm SL, I.S.B.B. uncat., 4 spec. 39-68 mm SL, I.Z.A. 7861, 10/7/1975 and 27/5/1976, P. Bianco and S. Zerunian coll.

D 4/8 ; LL 29-34 ; G.R. 15-21

Heckel (1844) described *Discognathus crenulatus* from Shiraz. In the last revision of the genus (Menon, 1964) this nominal species is included within the synonymy of *G. rufa obtusa* (Heckel), a subspecies ranging in the Tigris-Euphrat basin. Actually the specimens from Hablehrud and Mand rivers differ from those of the Tigris-Euphrat basin in having much fewer scales and fewer gill rakers ; the second author examined 18 specimens from the Tigris-Euphrat and found 35-37, rarely 38 scales and 25-26, rarely 27 gill rakers. In respect of the number of scales, there are differences also between our Iranian specimens : those from Mand river have 29-32 (M = 30,7), those from Hablehrud 33-34 (M = 33). We also examined three specimens from the type locality, Shiraz (M.N.H.N. 1632, received from Vienna Museum, perhaps syntypes of *crenulata)* and found 31-34 scales, e.g. rather intermediate values between those in Hablehrud and Mand rivers. Possibly the populations from these rivers, all lying in the basin of the Persian Gulf, will be in the future ascribed to several subspecies ; presently we include them in *Garra rufa crenulata* that is evidently distinct from *G. r. obtusa*.

Garra rufa persica (Berg, 1913)

Darab, springs of Kul River, south-western Iran, 10 spec. 51-80 mm SL, I.S.B.B. uncat., 54 spec. 16-82 mm SL, I.Z.A. 7859, 1/6/1976, P. Bianco and S. Zerunian coll.

D 4/7 ; LL 33-37 ; G.R. 18-22.

The species was described by Berg (1913) after six specimens from Bampur River, southern Iran (type locality) and one from Sirkuch in the eastern Khorasan. The river Bampur, that ends in the desert, lies east and not far from the Kul River basin ; Khorassan Province is much more distant, in north-eastern Iran. The subspecies may have a wide range in the whole eastern half of Iran.

Berg (1913, 1914) mentions 7 branched rays and 35-37 scales in lateral line, e.g. the range of variation of the last character is wider in our specimens.

There are some differences in respect of body proportions between the data given by Berg in the original description (1913) and those we found in ten specimens (51-80 mm SL) from Darab.

	after Berg	Darab specimens
Body depth (% SL)	20.0-21.8	21.8-26.0 (23.5)
Least depth (% SL)	–	12.6-14.9 (13.8)
Head length (% SL)	22.1-23.2	23.8-25.4 (24.8)
Snout length (% head L)	–	34.2-46.0 (40.9)
Eye diameter (% head L)	24.4-25.0	15.0-22.8 (21.8)
Eye diameter (% interorbital distance)	± 55.5	30.2-55.0 (43.5)

All these meristic characters are partially allometric and since Berg does not mention the size of his specimens, no definitive conclusion can be derived from these data about the differences between the specimens from the two localities.

A further difference between the description and especially the illustration of *Garra rufa* by Berg (1914, fig. 93) from Bampur River and our Darab specimens, concerns the colour pattern : the Bampur specimens have a dark bar near the base of the caudal, that has about the same width and extends from the dorsal to the ventral side of the caudal peduncle, while in most Darab specimens there is a rather roundish, unsharply delimited spot (but in a few of them a quite unsharply delimited vertical bar, more or less similar to that in the illustration of the type specimen by Berg).

We consider these differences are too small to justify the separation of the Darab population in a distinct subspecies.

This is the only subspecies of the polytypic *G. rufa* that has seven branched dorsal rays, the three others (*rufa, obtusa, crenulata*) having but eight. One important character, that justifies the inclusion of *persica* within *rufa,* is the presence of blackish spots on the base of the dorsal fin ; according to Menon (1964) the only *Garra* species sharing this character are : *rufa* sensu lato, *barreimiae* from Oman, *tibanica* from the Arabian Peninsula, the six African species and a single southeast Asian one (*notata,* from Tenasserin and Burma).

Menon (1964) includes *persica* within the synonym of the Tigris-Euphrat subspecies *obtusa ;* actually *obtusa* constantly has eight branched dorsal rays, as against seven in *persica.*

Cyprinion tenuiradius Heckel, 1846)

Hablehrud River near Borazjan, 14 spec. 62-103 mm SL (6, I.S.B.B. uncat, and 8, I.Z.A. 7862), 14/7/1975 and 28/5/1976, P. Bianco and S. Zerunian coll.

D 4/13-15 ; A 3/7 ; LL 35-38 ; G.R. 12-16.

This species is very close to *Cyprinion macrostomum* from the upper Tigris-Euphrat and Kueik rivers, Aleppo, both species having a wide, transverse mouth, contrary of *C. kais,* that occurs sympatrically with *macrostomum* and was wrongly considered a synonym of the last named even by some recent authors such as Berg (1949) and Karaman (1971) and in which the mouth opening is much narrower and arched. In *tenuiradius* the dorsal spine is more slender than in *macrostomum* (yet this character cannot be measured) and there are fewer dorsal rays (the last named species has 40-44, rarely 39 or 45). Both may prove to be subspecies of a polytypic species ; but we hesitate in lumping them, since *tenuiradius* is said by Berg to occur also in the lower Tigris, and one must verify if an intergradation of the two forms takes place in the middle reach of this river, or if they occur sympatrically.

Cyprinion watsoni (Day, 1872)

Synonyms : *Scaphiodon watsoni* Day, 1872 (Indus basin in Sind and Punjab ; *S. irregulare* Day, 1872(Sind) ; *S. microphthalmus* Day, 1880 (Quetta, inner drainage of Baluchistan, west of the Indus basin) ; *Cirrhina afghana* Günther, 1881 (Kush, inner drainage of Afghanistan) ; *Cirrhina afghana* var. *nikolskii* Berg, 1905 (Bampur River, south-eastern Iran) ; *Cyprinion kirmanense* Nikolski, 1900 (Kirman, central Iran) ; *Scaphiodon macmahoni* Regan, 1905 (delta of Helmand River, inner drainage between Iran and Afghanistan) ; *S. baluchiorum* Iandrins, 1910 (Nihnir R., Indian Ocean slope of southern Iran) ; *S. watsoni belense* Zugmayer, 1912 (Jhelum, Indus drainage in Punjab) : *S. readingi* Hora 1923.

Darab, Kul River basin, 70 spec. 32-138 mm SL, I.Z.A. 7857 (6 I.S.B.B. uncat.), 1/6/1976, P. Bianco and S. Zerunian coll.

D 4/10-12 ; A 2/(6) 7 (8) ; LL 34-40 ; G.R. (9) 10-12 (13).

This is a quite variable species, the range of which includes the middle part of the Indus basin in Pakistan (and probably in India too), many rivers of the inner drainages of Afghanistan and Iran, the rivers flowing into the Indian Ocean (Persian Gulf) in Iran and also Oman (Muscat) in the eastern corner of the Arabia Peninsula. This is a quite variable species, in respect of many characters such as number of dorsal rays, scales, body proportions, extension of scales on the ventral side and on the back (there is a either sharply marked or a quite slight scaleless stripe), even colour pattern. Several subspecies, most of them connected by intergrades will surely be recognized in the future and most of the numerous names, listed above as synonyms, will be valid for the subspecies. In spite of the fact that the second author could study, besides the Darab specimens, several others from various areas in Iran, Afghanistan and Pakistan (including for example, syntypes of *Cirrhina afghana*), it is not yet possible to delimite subspecies within the area extending from the Persian Gulf to the Indus basin ; the only well delimited subspecies is *C. watsoni muscatensis* (Boulenger, 1887) from Oman, south eastern Arabian Peninsula, that usually has 10, rarely 9 or 11 branched dorsal rays and 39-41 scales in lateral line (in 11 examined specimens), as against 34-39 rarely up to 41 in the Middle East area (1).

The Darab population is characterized by : 10-12 branched dorsal rays (Mean : 11), 36-39, rarely 34 or 35 and 40 scales in lateral line (M. : 37.1) ; body depth in % SL 24.6-28.8 (M : 26.48) ; least depth in % SL 9.7-10.7 (10.4) ; caudal peduncle length in % SL 14.3-18.5 (16.9) ; predorsal distance % SL 46.4-52.3 (48.2) ; head length in % SL 24.8-27.6 (26.0) ; snout length in %SL 6.7-8.7 (8.1) ; eye diameter in %SL 5.1-6.3 (5.8).

Of all these characters, the most significant is the number of dorsal rays, that varies in the other populations within the subspecies between 9 and 11 and the average values between 9.1 (Khost, Afghanistan) and 10.2 (the syntypes of *C. afghana* ; Kushk, northern Afghanistan). In no other population did we find specimens with 12 branched dorsal rays, or average values higher than 10.2.

The number of scales varies, in most populations, between the same range as in the Darab population. Only a few specimens from Waziristan and from Pakistan, have 40 scales ; the average values vary between 36.5 (Kirman, probably inner drainage of SE Iran) and 37.9 (Waziristan, NW Pakistan).

Since none of the specific names, here included within the synonymies of the species, apply to specimens from Darab or other locality within Kul River basin, this population will be assigned in the future (when a comprehensive study of the variation of *C. watsoni* will be undertaken) to a new subspecies.

Capoeta capoeta aculeata (Valenciennes, 1844)

Qom River, near Qom, inner drainage of northern Iran, 13 spec. 72-102 mm SL, I.S.B.B. uncat, and 170 spec. 33-104 mm SL I.Z.A. 7887, 5/6/1976 and 6/7/1975, P. Bianco and S. Zerunian coll.

Other available specimens : syntypes of *Chondrostoma aculeatum*, M.N.H.N. 2357, Iran (with no mention of locality), 6 spec. 105-210 mm SL ; M.N.H.N. 1960. 611, no locality, 2 spec. 149 and 136 mm SL ; B.M.N.H. 1975.1.17 : 255-258, Isfahan, 2 spec. 166 and 132 mm SL.

D 4/8 (9) ; LL 37-45 ; G.R. 17-23 ; circumpeduncular scales 16, 18 or 20.

Mouth opening smaller than in other subspecies of the same species and quite slightly arched, almost straight. In about one third of the specimens there are two slightly marked longitudinal rows of small spots above the lateral line.

Among the numerous subspecies of *C. capoeta, aculeata* has the largest scales. Its range includes the inner drainage of northern Iran, south of Elburntz mountain, not reaching the Caspian Sea.

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(1) Banister and Clarke (1975) record from Oman *C. microphthalmus* (Day) mentioning *muscatensis* as synonym and give 33-39 scales in lateral line.

Capoeta capoeta macrolepis (Heckel, 1846)

Pulwar River (Kor R. basin) near Persepolis, 19 spec. 48-177 mm SL, I.S.B.B. uncat. and 21 spec. 47-235 mm SL, I.Z.A. 7888, 30/5/1976, P. Bianco and S. Zerunian coll.

Other available specimens : Z.M.H. 2527, Karasu-Gamasia, southern eastern Iran, one 179 mm SL.

D 4/8 (9) ; LL 41-47 (M : 44.0) ; G.R. 18-20 (18.9) ; Circum-ped. scales 16 or 18.

There are five longitudinal series of small spots above and two below the lateral line, better marked in large-sized specimens. Our specimens are from the type-locality. The range of the subspecies seems to be restricted to Kor River Basin ; it is closed to *Capoeta capoeta aculeata,* differing from it in having smaller scales.

Capoeta capoeta gracilis (Keyserling, 1861)

Quezel-Ouzan River, tributary to Sefid-Rud near Mianeh (Caspian Sea drainage), 6 spec. 64-129 mm SL (3 deposited in I.S.B.B. uncat. and 3 I.Z.A. 7886), 30/6/1975 P. Bianco coll.

D 4/8 ; LL 53-59 ; G.R. 20-22 ; Circum-ped. scales 20. Body proportion expressed as % of SL : body depth 21.2-24 . least depth 10.1-11.9 ; caudal peduncle length 15.9-19.0 ; head length 23.8-26.5 ; eye diameter 4.7-6.6 ; mouth opening 6.7-8.5. Mouth large, transverse (almost straight). Colour darker than in other subspecies, no longitudinal rows of spots.

This is a variable subspecies, the range of which includes the southern slope of the Caspian Sea, between Sefid-Rud and Atrek, but not the Kura-Araxes drainage, where lives another subspecies, *C. capoeta capoeta* (Güldenstaedt), characterized by : LL 53-61 ; G.R. 18-23, colour lighter, mouth less arched and other body proportions.

Since its range includes several distinct river basins, *C.c. gracilis* is a variable subspecies. The above mentioned values refer to the Quezel-Ouzan specimens ; other available specimens, from other rivers, have : LL 48-53 (56), a deeper body, longer caudal peduncle, shorter head, smaller eye.

Capoeta capoeta intermedia subspecies nova (fig. 1B and 2B)

Holotype : I.Z.A. 7892, Mand River near Akbar, southern Iran, 92.5 mm SL ; paratypes, 13 specs. 68-86 mm SL I.S.B.B. uncat. and 62 specs. 36-87 mm SL, I.Z.A. 7893, same locality, 27/5/1976, P. Bianco and S. Zerunian coll.

Other specimens (not included as paratypes) : Hablehrud River near Borazjan, two specs. 90 and 103 mm SL. I.Z.A. 7894, 28/5/1976, P. Bianco and S. Zerunian coll.

Derivatio nominis.– *intermedia* : intermediate, the subspecies being intermediate between *C.c. umbla* and *C.c macrolepis.*

Diagnosis.– A subspecies of *C. capoeta,* intermediate between *C.c. umbla* and *C.c. macrolepis,* characterized by 62-70 scales in lateral line (M : 66.2), 19-24 gill rakers (M : 21.3), transversal mouth (but smaller than in *C.c. umbla*) and a rather light coloration.

D 4/8 ; LL 62-70 ; G.R. 19-24 ; Circum-ped. scales usually 26, rarely 24 or 28.

In larger specimens (73-92 mm SL) following body proportions expressed as in % of the SL : body depth 23.4-26.3 (M : 24.8) ; least depth 10.8-12.6 (11.7) ; caudal peduncle length 14.1-18.1 (16.6) ; predorsal distance 46.5-51.0 (49.8) ; preventral distance 53.0-56.0 (54.5) ; preanal distance 75.0-79.0 ; pectoral-ventral distance 26.8-33.0 (30.0) ; ventral-anal distance 22.6-26.3 (24.2) ; length of pectoral 18.6-22.2 (20.8) , length of ventral 16.0-20.0 (18.3) ; height of dorsal 20.4-22.5 (21.2) , dorsal base length 15.2-20.6 (18.4) ; height of anal 15.1-19.0 (17.2) ; anal base length 7.5-8.7 (8.2) ; head length 24.8-26.7 (25.5) ; snout length 6.5-8.2 (7.4); eye diameter 4.8-6.6 (5.7) ; barbel length 3.6-5.3 (4.6). In % of head length : snout length 27.6-34.6 (31.8) ; eye diameter 19.6-24.5 (21.7) ; barbel length 14.3-20.0 (17.6) ; mouth opening 15.6-28.6. Postdorsal distance 100-122 % of the predorsal. Eye diameter 51.0-71.0 of interorbital width.

Colour apparently lighter, the margin of lateral scales not as darkened as in other subspecies (the specimens are not quite well preserved and we are not sure about this character).

Remarks.– This subspecies from Mand River, flowing into the Persian Gulf, is characterized by 62-70 scales in lateral line (M = 66.2), being intermediate between the subspecies *umbla* from the Tigris-Euphrat basin (LL 81-98 in the available specimens, 87-99 according to Karaman, 1969) and *macrolepis* from Kor River basin, inner drainage (LL 41-47). The two spec. from Hablehrud River, that lies slightly north-east from Mand River, have 61-65 scales in lateral line, being intermediate in this character slightly between *intermedia* and *macrolepis,* but evidently much closer to the first named. An intergradation between *macrolepis* and *umbla,* may occur in the rivers of south-western Iran flowing into the Persian Gulf between the lower Euphrat and Hablehrud River.

Following other subspecies of *Capoeta capoeta,* not represented in the collection under report, range in Iran :

C.c.umbla in the Tigris-Euphrat drainage : D 4/8-10 ; LL 81-99 ; G.R. 18-21 ; Circum-ped. scales 32, 34 or 36 ; mouth opening large and quite straight.

C.c. capoeta in the Kura-Araxes drainage : D 4/8 (9) ; LL 55-61 ; G.R. (16) 18-23 (24) ; Circum ped. scales 20 rarely 22 ; mouth large, almost straight or slightly arched ; colour light.

C.c. heratensis in Tedgen, Murgab and Artchman rivers which drain north-western Afghanistan, Turkmenistan. The first-named also reaching the north-western corner of Iran ; D 4/ 8 ; LL (50-) 55-60 ; G.R. 19-21 ; circum-ped. scales 24 or 26 ; mouth slightly arched ; constantly two pairs of barbels.

Of the remaining five subspecies of C. *capoeta*, one, *steindachneri* Kessler, 1872 occurs in Syr and Amur Dar ja basins, e.g. east of the range of *heratensis*, from which it differs in having slightly fewer gill rakers (G.R. 17-21) and in having usually a single pair of barbels ; the four others range west of the Tigris-Euphrat.

There is apparently no subspecies of C. *capoeta* in Kul River basin, where another, very distinct species occurs : C. *saadi*.

Capoeta buhsei (Kessler, 1877)

Springs of Kul River basin near Darab, one spec. 86 mm SL, I.Z.A. 7889, 1/6/1976 P. Bianco and S. Zerunian coll.

Further available specimens were borrowed by various museums. Most of them are from inner drainage of northern Iran (near Teheran, Isfahan and Djodje), others from the vicinity of Kirman (e.g. north of Darab), e.g. all from the area including several inner drainages east of the rivers flowing into the Persian Gulf.

The species is characterized by : D 4/8 (9) ; LL 73-92 ; G.R. 11-19 ; mouth opening arched. In the single specimen from Darab : D 4/9 ; LL 76-79 ; G.R. 13 ; depth of the body 21.3 % of SL. The differences between the various populations of C. *buhsei*, in comparison with the closely related C. *saadi*, are given in tabl. II.

Capoeta saadi (Heckel, 1846)

Examined material : Pulwar River near Persepolis, 10 spec. 61-108 mm SL, I.S.B.B. uncat. and 24 spec. 44-122 mm SL, I.Z.A. 7882, 8/7/1975 and 30/5/1976 P. Bianco and S. Zerunian coll. ; Mand River near Akbar, 8 spec. 56-107 mm SL, I.S.B.B. uncat. and 21 spec. 31-78 mm SL. I.Z.A. 7884, 10/7/1975 and 27/5/1976, P. Bianco and S. Zerunian coll. ; Mand River near Dasht -e- Arzhan, 4 spec. 74-80 mm SL, I.S.B.B. uncat. and 7 spec, 63-105 mm SL, I.Z.A. 7883, 11/7/1975 and 25/5/1976, P. Bianco and S. Zerunian coll. ; springs of Kul River basin near Darab, one 72 mm SL, I.S.B.B. uncat, and 2 spec. 74 and 78 mm SL, I.Z.A. 7885, 1/6/1976 P. Bianco and S. Zerunian coll. Other available specimens : one syntype of *Scaphiodon saadi* R.M.N.H. 3166, 82 mm SL, Persepolis.

This is one of the least known species of the genus ; it is not mentioned in the revision of the genus by Karaman (1969) who had no specimen available. We had rather many specimens at our disposal, most from the type-locality (Persepolis, Pulwar River, Kor R. basin) ; this enabled us to point out its position within the genus.

This species is close to C. *buhsei*, having an arched mouth (as against transverse in most subspecies of C. *capoeta)*, with slightly developped horny cover, feebly ossified dorsal spine and 13-17 gill rakers. The formula is :

D 4/8 (9) ; LL 53-76 ; G.R. 13-17 ; Circum-ped. scales 24-28.

Table II. Main characters of various populations of *Capoeta saadi* and *C. buhsei*

Spec.	Locality	n	LL	GR	Stand.length mm	Depth % st length	Least depth % st. length
Capoeta saadi	Kur R., Persep.	10	53-74 (65.5)	13-17 (14.5)	61.5-108.0	25.0-27.3 (26.4)	10.7-13.0 (11.68)
	Kur R., paratype	1	?	14	82.0	21.9	9.8
	Shur R., Shiraz	4	62-69 (65.3)	14-17 (15.0)	74.0-80;0	21.9-25.0 (23.17)	9.5-11.8 (10.9)
	Mand River	8	66-76 (69.5)	13-16 (14.3)	56.0-107.0	22.2-28.2 (24.4)	11.1-12.0 (11.6)
	Darab	3	63-69 (65.3)	13	72.-78.2	22.2-24.0 (23.2)	11.3-11-8 (11.5)
	Aucher Eloy	3	65-73 (67.6)	14-17 (15.5)	91.0-120.0	19.8-21.1 (20.3)	10.2-11.5 (10.86)
Capoeta buhsei	Darab	1	76-79 (77.5)	13	86.0	21.3	9.3
	Jupa. S. Kirman	6	73-82 (77.0)	12-16 (13.5)	95.0-153.0	18.4-25.8 (20.8)	8.7-9.8 (9.3)
	Isfahan	2	76-77 (76.5)	15-19 (17.5)	136.0-145.0	23.5-24.6 (24.01)	9.6-11.2 (10.42)
	Djodje	2	80-85 (82.5)	12-13 (12.5)	126.0-150.0	24.1-24.6 (24.35)	10.5-11.0 (10.75)
	Teheran	6	79-92 (84.65)	11-14 (13.0)	141.0-208.0	21.5-24.8 (22.97)	9.9-11.0 (10.63)
	Iran M.N.H.M.	9	70-80 (74.5)	12-15 (13.3)	92.0-177.0	18.9-23.4 (21.4)	9.6-11.2 (10.42)

Body proportions in % of SL : body depth 21.8-27.6 ; least depth 9.9-13.0 ; caudal peduncle lenght 14.5-18.0 ; predorsal distance 50.5-56.2 ; preventral distance 54.0-59.0 ; pectoral-ventral distance 27.6-34.4 ; ventral-anal distance 19.5-23.3 ; pectoral length 18.5-22.8 ; ventral length 14.6-20.3 ; dorsal height 16.3-21.1 ; head length 24.6-31.2 ; snout length 7.6-10.5 ; eye diameter 4.5-6.8 ; barbel length 4.8-7.6.

Table II shows the differences, in respect of number of scales, gill rakers, body depth and least body depth between the specimens of *C. buhsei* and *C. saadi* from all localities. One remarks how strong is the individual variability even within the same locality (e.g. number of scales in *C. saadi* from Pulwar River, Persepolis), even the intra-individual variability is strong (in some specimens there are up to five scales more on one body side than on the other).

In spite of this strong intraspecifical variability, the differences between the two species remain evident : *buhsei* has 70-92 scales in lateral line and 26-36 circum-ped. scales, *saadi* has 53-74 in lateral line and 24-28 circum-ped. scales ; besides this, the maximum and minimum body depth have both higher values in *saadi*. The ranges of both forms are rather representative : *buhsei* lives above all in the inner drainages lying east of the Persian Gulf slope, while *saadi* occurs mainly in the basin of the rivers flowing into the Persian Gulf (Mand and Kul R.) and also in Pulwar River (Kor River basin) near Persepolis, western part of the inner drainage close to the Persian Gulf slope ; yet both species occur sympatrically at least in one locality : Darab on Kul River, that flows into the Persian Gulf. From the four specimens collected in this locality, one is *buhsei* (the specimen has 79 scales on the right, 76 on the left sides, body depth 21.3 % of SL ; least depth 9.3 % of SL), three are *saadi* (they have LL 63-69 ; G.R. 13 ; body depth 22.1-24 % SL ; least depth 11.3-11.8 % SL). The difference is sharp and cannot be considered as representing individual variability. It seems evident there are two, reproductively isolated species.

The sympatrical occurrence of *buhsei* and *saadi* in Kul River basin, is an argument for considering them distinct species and not subspecies.

There are two more species of the group *buhsei* in Iran that are no represented in the collection under study : *fusca* Nikolski, 1897 from eastern Iran, characterized by D 4/7 ; LL 49-59 ; G.R. 13-17 ; Circum-ped. scales 20-24 ; body rather low (body depth 17.9-25.5 % of SL, M = 21.4 in the available specimens, mouth arched) and *gibbosa* Nikolski, 1897, in Korassan, with D 4/7 ; LL 44-45 ; G.R. 15-17 ; Circum-ped. scales 20, mouth arched.

Capoeta barroisi mandica subspecies nova (fig. 1C and 2C)

Holotype ; I.Z.A. 7890, 107 mm SL, Mand River near Dasht-e-Arzhan, 11/7/1975, P. Bianco coll. Paratypes : 5 spec. I.S.B.B. 3123 and 95 spec. I.Z.A. 7891, 34-86 mm SL, same locality, 25/5/1976, P. Bianco and S. Zerunian coll.

Derivatio nominis.– after type locality.

Diagnosis.– A subspecies of *C. barroisi* having usually eight branched dorsal rays, 61-68 scales in lateral line, 21-24 gill rakers and a transverse mouth.

D 4/8 (9) ; A 3/5 ; LL 61-68 ; G.R. 21-24 ; Circum-ped. scales 30 or 32.

Body proportion in % of the SL : body depth 24.2-27.3 ; least depth 11.9-13.4 ; caudal peduncle length 15.3-17.1 ; predorsal distance 50.0-54.5 ; preventral distance 51.5-58.0 ; preanal distance 69.5-77.0 ; pectoral-ventral distance 28.0-31.0 ; ventral-anal distance 22.0-26.2 ; length of pectoral 16.7-19.4 ; length of ventral 15.8-18.0 ; height of dorsal 15.8-21.3 ; length of dorsal base 15.0-17.9 ; height of anal 14,8-16.4 ; head length 23.4-29.5 ; length of snout 7.2-8.3 ; eye diameter 4.6-6.2 ; length of barbel 2.8-5.0 ; width of mouth 5.8-7.0. Snout 30,5-32.2 % of head ; eye diameter 20.0-22.5 % of head and 50.0-64.5 % of interorbital width. Mouth opening transverse, almost straight. Postdorsal distance usually larger than the predorsal : 100-108 % of this. Edge of dorsal fin almost straight.

Sides with brownish spots irregularly arranged in the upper half of the body.

Remarks.– The nominal subspecies *C. barroisi barroisi* ranges mainly in lake Orontes basin, western Syria, and also in the Tigris-Euphrat. The second author examined 15 specimens, 106-109 mm SL. They are characterized by : D 4/ (8) 9 ; LL 69-82 ; G.R. 27-31 ; body depth 21.2-28.4 % of SL ; edge of dorsal slightly concave, mouth transversal (as in the new subspecies). Another subspecies, *C. barroisi persica,* was described by Karaman (1969) after a single specimen from lake Zariwar at Mariwan, 120 km west of Sanandaj (north-western Iran). The second author examined the holotype of this species (Z.M.H. 4119) 183 mm SL. It has : D 4/ 8 ; LL 78-79 ; G.R. 18 ; Circum-ped. scales 44 ; mouth arched and somewhat larger spots than in our new subspecies.

Hence the specimens from Mand River basin differ either from the nominal subspecies or from *persica* in respect of number of scales and gill rakers. From *persica* also in having an almost straight mouth. One is justified to include them in a new subspecies.

Barbus cyclolepis cyri Filippi, 1865

Tributary of Araxes River near Maku (Caspian Sea drainage), 5 spec. 45-68 mm SL (2 I.S.B.B. uncat. and 3 I.Z.A. 7849), 19/6/1975, P. Bianco coll.

D 4/8 ; A 2/5 ; LL 59-64.

We consider *B. cyri* from the southern tributaries of the Caspian Sea, together with *B. lacerta* from Aleppo and the Tigris-Euphrat *B. escherichi* from northern Anatolia and western Transcaucasia, *B. euboicus* from Eubea island, off eastern Greece, *B. cyclolepis* from the south Bulgarian rivers, *B. tauricus* from Crimea and perhaps other *Barbus* from adjacent areas to be only subspecies of a rather widely ranging species that inhabited the former Aegean mainland. The differences between them are above all statistical.

Barbus miliaris Filippi, 1862

Qom River near Qom, inner drainage of northern Iran, 12 spec. 42-77 mm SL (6 I.S.B.B. uncat. and 6 I.Z.A. 7850), 5/6/1976 P. Bianco and S. Zerunian coll.

D 4/8 ; A. 2/5 ; LL 74-87.

This species is similar and probably closed related to *B. cyclolepis*, the colour pattern, shape of anal fin, etc. being the same. It differs from all available specimens of the various subspecies of *cyclolepis* not only in having more scales, but also a more pointed and longer snout. We therefore consider it for the moment as specifically distinct, althought it may be only a subspecies of *cyclolepis*.

Barbus capito (Güldenstaedt, 1773)

Qezel Owzan (Sefid-Rud R. basin), near Mivaneh, one spec. 60 mm SL, I.Z.A. 7854, 30/6/1975, P. Bianco coll.

D 4/8 ; A 2/5 ; LL 58-59.

Hablehrud River, drainage of Persian Gulf, one spec. 67 mm SL, I.Z.A. 7853, 28/5/1976 P. Bianco and S. Zerunian coll.

D 4/8 ; A 2/5 ; LL 52-52 ; G.R. 18.

Kul River basin at Darab, drainage of the Persian Gulf one spec. 125 mm SL, I.Z.A. 7851, 1/6/1976 P. Bianco and S. Zerunian coll.

D 4/8 ; A 2/5 ; LL 52 ; G.R. 19.

While the identity of the first specimen raises no doubts, the two others differ from *B. capito* as defined by Berg (1949 a) in having fewer scales in the lateral line. *B. capito*, that is native in southern part of the Caspian Sea drainage, has LL 58-65 (rarely 57 up to 68). In other respects (shape of snout and dorsal fin, colour pattern) the Hablehrud and Kul rivers specimens are similar to *B. capito*. They probably belong to a distinct, still undescribed subspecies, but we hesitate in describing it on only two specimens a single of which is fully mature and also having to few specimens of the true *B. capito*.

Schizopyge zarudny (Nikolski, 1897)

Synonyms : *Aspiostoma zarudny* Nikolski, 1897 (Seistan) ; *Schizothorax zarudny*, Berg, 1949 b : 406 (Seistan).

Rud-Seistan. 8 km from Zabol, 8 spec. 59-171 mm SL, I.Z.A. 7842 (3 are deposited in I.S.B.B. uncat.), 2/10/1977 Prof. Augusto Vigna coll.

D 4/8 ; A 2/5 ; LL $103 \frac{26\text{-}30}{18\text{-}23} 113$; G.R. 32-37 ; Phar. teeth 5.3.2-2.3.5, more rarely 5.3.2-1.3.5.

Body rather elongate, its depth 15.3-20.2 in % of SL ; least depth 7.4-10.5 ; caudal peduncle length 16.2-20.8 ; predorsal distance 49.0-52.5 ; preventral distance 50.0-55.5 ; pectoral-ventral distance 24.0-29.0 ; length of pectoral 16.7-17.6 ; length of ventral 14.6-16.3 ; height of dorsal 19.3-24.0 ; length of dorsal base 11.5-14.6 ; height of anal 14.9-15.4 ; length of head 26.6-27.1 ; length of snout 6.9-9.0 (and 27.2-29.3 % of head length) ; eye diameter 4.1-4.8 (and 15.2-18.2 of head length). Eye diameter 49.5-65.0 in % of interorbital width (values in seven large specimens 137-171 mm SL).

Remarks.– *Schizopyge* Heckel, 1843 (type species *Schizothorax curvifrons* Heckel, 1838 as designed by Bleeker, 1861), synonym *Schizothoraichthys*, Misra 1959, is the right generical name for the High Asian snow-barbs without suctorial discus. These species were listed until recently as *Schizothorax* Heckel 1838 ; but the type species of the last genus is *S. plagiostomus* Heckel, as fixed by Bleeker, 1861 ; this is a species with a suctorial disc, from the group usually recorded as *Oreinus* Mc Clelland, 1839. The last generical name becomes a synonym of *Schizothorax*.

Schizopyge is above all a High Asian genus, including quite few species in Iran. *S. zarudnyi* is the only one from Seistan ; *S. pelzami* occurs in the drainages of Tedjen and Murghab rivers (Turkmania and North-Iran) ; a subspecies of it *S.p. iranicus* was recently described from near Teheran (Karaman, 1969).

We have some hesitations in ascribing our specimens to *S. zarudnyi* as described by A. Nikolski, (1899) and Annandale & Hora (1920), since they have a much slenderer body. But they were captured in almost drying pools, full with starving fish, the low body being not the usual one.

Schizocypris altidorsalis species nova (fig. 1D)

Holotype : I.Z.A. 8169, 74 mm SL, Nahr-Taheri near Zabol, Seistan, 1/10/1977, A. Vigna coll. Paratypes : I.Z.A. 7841, 5 spec. 35-65 mm SL (further specimens I.S.B.B. 3136), locality as holotype ; I.Z.A. 7844, 3 spec. 68-73 mm SL, Rud-Sistan, 8 km. from Zabol, Seistan, 2/10/1977, A. Vigna coll. (further specimens I.S.B.B. 3137).

Derivatio nominis. - After *altus* : high and *dorsalis* : dorsal, because of the high dorsal fin.

Diagnosis.– a *Schizocypris* species with very high dorsal fin, provided with a strong denticulated spine, 87-96 scales in lateral line, most of the body scaled, except the anterior part of the breast. They are embedded on most of the body, except the caudal peduncle and the lateral line.

Description.– D 4/8 ; A 2/6 ; LL 87-96.

Body proportion in % of SL : Body depth 18.9-24.6 ; least depth 8.8-11 ; length of caudal peduncle 15.2-19.4 (16.9-21.4 if measured to the end of the skin and scales) ; predorsal distance 48.0-53.0 ; preventral distance 50.2-55.2 ; preanal distance 73.0-78.0 ; distance from pectoral to ventral insertion 25.4-30.2 ; distance from ventral to anal insertion 20.4-26.3 ; length of pectoral 18.8-22.0 ; length of ventral 14.8-19.4 ; height of dorsal 24.4-29.8 ; length of dorsal base 13.9-17.1 ; height of anal 17.6-20.2 ; length of head 24.3-27.2 ; length of snout 5.6-7.4 ; eye diameter 5.1-7.0. Snout 22.2-29.0 % of head length ; eye diameter 21.6-27.4 % of head and 56.0-73.0 % of interorbital width.

Mouth inferior, transverse, slightly arched ; lower lip developped only laterally ; lower jaw covered in some specimens by a horny sheat that probably periodically falls. No barbels.

Origin of dorsal, in some spec., equally distant between tip of snout and caudal base, in others nearer either snout tip or caudal. Origin of pelvics behind that of dorsal. Last simple ray of the dorsal strongly ossified, denticulated and long, the fin being much higher than in the two other species of the genus ; posterior edge of dorsal straight, almost vertical.

The scales cover most of the body, except the breast ; there is no scaleless stripe on the back, in front of the dorsal, as in *S. brucei*. They are well developped and imbricated on the caudal peduncle and also along lateral line ; on the other parts of the body, they are embedded and gradually become smaller ; on the ventral side they are excessively small and hardly visible ; in most specimens the limit between the scaled and the scaleless part of the belly, cannot be determined. A raw of enlarged scales surround the base of the anal and the anus.

Colour pattern.– In preserved specimens : upper half of body greyish, with very numerous brown spots ; lower half white-yellowish. Fins length greyish ; the brownish punctuations extend on the spinified rays and on the base of the dorsal, and also on the out caudal rays.

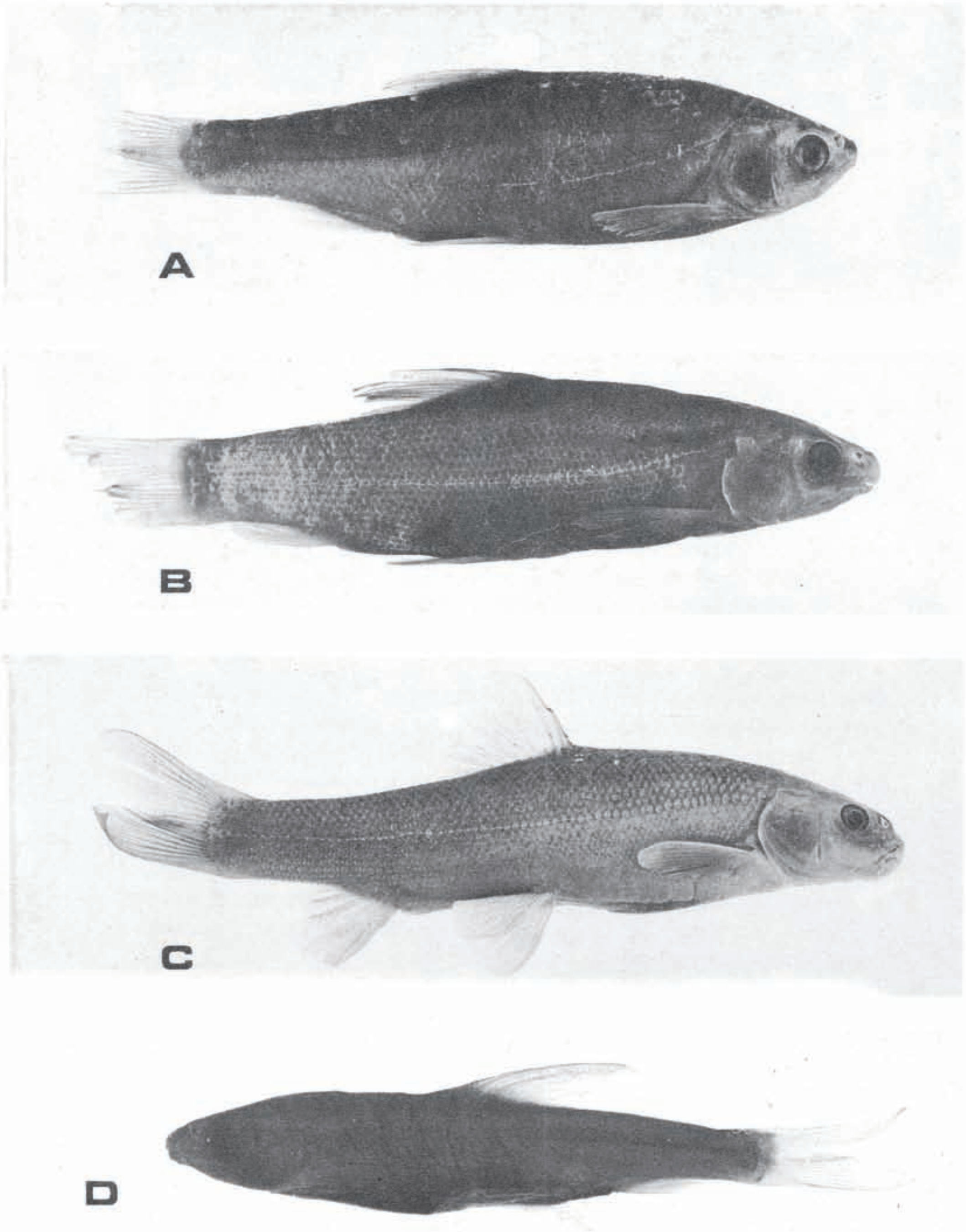

Fig. 1. Lateral view of new forms of Cyprinidae from Iran :
A *Chondrostoma cyri orientalis* n. ssp., holotype, 92 mm SL ;
B *Capoeta capoeta intermedia* n. ssp., holotype 92.5 mm SL ;
C *Capoeta barroisi mandica* n. ssp., holotype 107 mm SL ;
D *Schizocypris altidorsalis* n. sp., holotype 74 mm SL.

Comparative remarks.– The genus *Schizocypris* Regan, 1914 includes two more species : *S. brucei* Regan, 1914 form the basin of Gomal River, a right tributary of the Indus in the present day Pakistan (Baluchistan Province) and *S. ladigesi* Karaman 1969 from Kankai River, that belongs to the basin of Kabul River, another right tributary of the Indus.

The main differences between the three species are :

	brucei	*ladigesi*	*altidorsalis*
LL	74-81	78-88	87-96
Dorsal height %SL	19.4-20.4	14.7-19.5	24.4-29.8
Scales on body sides	embedded	well developped	well developped on caudal peduncle embedded on the rest of the body
Top of back in front of dorsal fin	naked	scaled	scaled

One remarks that the new species has more scales and a much higher dorsal fin than the two others (*S. ladigesi* being intermediate in respect of the first character, *S. brucei* in respect of the second), while in the disposition of the scales, *S. altidorsalis* is intermediate, being closer to *S. ladigesi*. The reduction of the scales being a derived character, *brucei* is in this respect the most apomorphic and *ladigesi* the most plesiomorphic species.

The genus *Schizocypris* belongs to the tribe Schizothoracini ; its main differential characters against the other genera of the tribe are : the inferior transversal mouth, absence of barbels, six (as against five) branched anal rays. While all other Schizothoracini genera, except the South Indian *Lepidopygopsis* have a High Asian range, *Schizocypris* is West Asian. Its three species have representative ranges : two inhabit distinct rivers in the western part of the Indus basin, *altidorsalis* occurs in the inner drainages of eastern Iran.

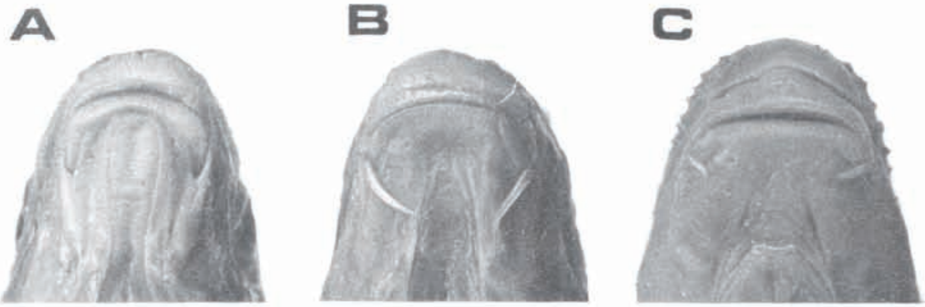

Fig. 2.– Mouth conformation of : A *Chondrostoma cyri orientalis* ; B *Capoeta capoeta intermedia* ; C *Capoeta barroisi mandica*. From holotypes.

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